

From: Dennis Carney/R3/USEPA/US
Sent: 3/5/2012 11:56:10 AM

To: jcampbel@usgs.gov
CC: djlow@usgs.gov; Richard Rupert/R3/USEPA/US; Gerald Heston/R3/USEPA/US@EPA; clschref@usgs.gov
Subject: Request for Assistance

Mr. Jim Campbell,

The purpose of this email is to outline a request from the US Environmental Protection Agency (EPA)- Region 3, Hazardous Site Cleanup Division to the U.S. Geological Survey (USGS), Water Resources Division, for assistance in determining the natural occurrence and range of several groundwater quality constituents including, but not limited to arsenic, manganese and sodium. The data for this survey is from the Dimock, Susquehanna Co., Pennsylvania, area and includes approximately 60 groundwater supply wells. This request is in response to preliminary discussions held between Richard Rupert of my staff and Dennis Low of your staff.

Background

EPA is currently assessing the drinking water quality in private wells in an approximate 9 square mile area surrounding Dimock, Pennsylvania. A significant number of the private well samples have shown concentrations of substances such as arsenic, manganese, barium, lithium and sodium, that some might describe as brackish. While these substances are generally labeled as naturally occurring some of the available sampling data reflects concentrations which can approach or exceed various criteria used when considering the safe consumption of private well water. The presence of this "brackish" groundwater has raised concerns that there may be a non-natural origin for these conditions.

In conducting a literature search regarding groundwater quality, several USGS papers discussing the presence of apparent "brackish" groundwater in several regions of northern Pennsylvania, were found. One of the authors common to several of the papers, Dennis J. Low, P.G., USGS WRD, Limekiln Road, New Cumberland, Pennsylvania, office was contacted by EPA Region 3 On-Scene Coordinator Richard Rupert. OSC Rupert has discussed with Mr. Low the performance of the tasks described below.

Request

Region 3 EPA requests Dennis J. Low, of USGS, WRD examine known groundwater quality data as well as the private well information of approximately 60 homes in the Dimock area, provided by EPA, and offer an informal opinion on the nature of groundwater quality in the area. The overall level of effort for this review is anticipated to take less than 2 days. It is anticipated the following tasks would need to be performed to provide an opinion:

1. Review the EPA provided map for any distinct spatial patterns. [EPA will provide this map directly to Mr. Low in a separate submission.]
2. Review local geology maps
3. Perform simple statistics to better understand water quality.
4. Compare results from EPA provided data set to USGS historical data.
5. Review driller records from the township(s) to determine if brackish water has been encountered before.
6. Offer an opinion based on best professional judgement, submitted via email to Mr. Rupert, as to whether arsenic, manganese and the brackish conditions being found by EPA are consistent with the hydro-geologic conditions in Susquehanna County and/or other settings in northeast Pennsylvania or exceed historical or other available data.

Conclusion

We would appreciate whatever professional advice the USGS can offer in this situation. If we need to further discuss the scope of this request, please feel free to call or email me using the contact information provided below. Thanks in advance for your efforts.

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